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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10:053,489	11-02-2001	Ronald Pasqualini	NSC1P218-P05063	3363

22434 7590 03-12-2003

BEYER WEAVER & THOMAS LLP  
P.O. BOX 778  
BERKELEY, CA 94704-0778

EXAMINER
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CAO, PHAT X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/053,489

Applicant(s)

PASQUALINI, RONALD

Examiner

Phat X. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☐ Claim(s) 2-5 and 7-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election with traverse of claims 1-10 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that Applicant elects with traverse. This is not found persuasive because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Nakayama et al (US. 6,208,023).

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Nakayama (Fig. 1b) discloses an integrated circuit package with a metal slug 12, the metal slug comprising: an upper surface upon which a semiconductor die 11 is mounted and to which ground pads 16B on the semiconductor die are electrically coupled; and a lower surface extending at least until it is exposed and co-planar with an exterior surface of the integrated circuit package.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (US. 6,420,779) in view of Nakayama et al (US. 6,208,023).

Sharma (Fig. 1) discloses a metal slug 120 having upper and lower surfaces; an integrated circuit die 110 mounted on the metal slug, the integrated circuit die 110 having signal pads and ground pads; a lead frame having a plurality of leads 130 and 140; and a semiconductor package body 150, wherein signal pads on the integrated circuit die 110 are coupled to leads on the lead frame, and wherein the lower surfaces of the metal slug 120 and the leads remain exposed and extend a predefined distance outside the semiconductor package.

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Sharma does not disclose the ground pads on the integrated circuit die are coupled to the upper surface of the metal slug 120.

However, Nakayama (Fig. 1b) teaches the forming of the ground pads 16B on the integrated circuit die 11 and connecting the ground pads 16B to the upper surface of the metal slug 12. Accordingly, it would have been obvious to couple the ground pads of Sharma to the upper surface of the metal slug 120 for the purpose of functioning the metal slug 120 as a ground terminal, as taught by Nakayama (column 11, lines 2-8).

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al (US. 6,208,023) in view of Yamaguchi (US. 6,166,430).

Nakayama (Fig. 1b) discloses a semiconductor package comprising: a metal slug 12 having upper and lower surfaces; an integrated circuit die 11 mounted on the metal slug, the integrated circuit die 11 having signal pads and ground pads; a lead frame having a plurality of leads 15; and a semiconductor package body 17, wherein signal pads on the integrated circuit die are coupled to leads 15 on the lead frame, ground pads on the integrated circuit are coupled to the upper surface of the metal slug 12 and the lower surface of the metal slug remains exposed outside the semiconductor package.

Nakayama does not disclose the lower surface of the metal slug 12 extending a predefined distance outside the semiconductor package.

However, Yamaguchi (Fig. 5C) teaches the forming of the lower surface of the metal slug 14 remaining exposed and extending a predefined distance outside the semiconductor package.

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Accordingly, in view of the teachings of Yamaguchi, it would have been obvious to extend the lower surface of the metal slug 12 of Nakayama a predefined distance outside the semiconductor package in order to function the lower surface of the metal slug as the external terminal, as taught by Yamaguchi (column 5, lines 3-7).

***Allowable Subject Matter***

7. Claims 2-5 and 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to disclose all the limitations recited in the above claims, including the relationship between the metal slug and the printed circuit board structures as claimed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessfully, the Examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

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PC

March 9, 2003

*Carmen*  
HRT & CA  
JUDY GARDNER